

What is claimed is:

1. An apparatus for controlling a permanent-magnet rotary machine having a permanent magnet and an armature respectively in a rotor and a stator, comprising:

magnetic pole position detecting means for detecting a magnetic pole position of said rotor;

current control means for controlling an armature current flowing through said armature while controlling the phase of an armature voltage to be applied to said armature depending on the magnetic pole position of said rotor; and

correcting quantity determining means for performing a dq vector control process to control said permanent-magnet rotary machine in a dq coordinate system which has a d-axis representing the direction of a magnetic field of said rotor and a q-axis representing a direction perpendicular to said d-axis while said rotor is rotating and said armature current is substantially zero, and determining a magnetic pole position correcting quantity to correct the magnetic pole position detected by said magnetic pole position detecting means so that a d-axis voltage command value determined by said dq vector control process will be substantially zero;

said current control means comprising means for controlling the phase of said armature voltage with a magnetic pole position which is produced by correcting the magnetic pole position detected by said magnetic pole position detecting means with the magnetic pole position correcting quantity determined by said correcting quantity determining means.

2. An apparatus according to claim 1, wherein said correcting quantity determining means comprises means for performing said dq vector control process by setting said magnetic pole position correcting quantity to a predetermined temporary setting value while said rotor is rotating and said armature current is substantially zero, and determining a true value of said magnetic pole position correcting quantity according to a predetermined equation based on a d-axis voltage command value and a q-axis voltage command value which are determined when said dq vector control process is performed.

3. An apparatus according to claim 1, wherein said correcting quantity determining means comprises means for performing said dq vector control process by changing said magnetic pole position correcting quantity to a plurality of values while said rotor is rotating and said armature current is substantially zero, and search-

ing for and determining a true value of said magnetic pole position correcting quantity which causes a d-axis voltage command value which is determined when said dq vector control process is performed to be substantially zero.

4. An apparatus according to any one of claims 1 through 3, wherein said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when said rotor rotates at a rotational speed which is equal to or lower than a predetermined speed.

5. An apparatus according to any one of claims 1 through 3, wherein said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when said rotor rotates at a rotational speed which is substantially constant.

6. An apparatus according to any one of claims 1 through 3, wherein said permanent-magnet rotary machine comprises a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle, and said correcting quantity determining means comprises means for determining said magnetic pole position cor-

recting quantity when the production of said vehicle is completed or said vehicle is inspected for maintenance.

7. An apparatus according to any one of claims 1 through 3, wherein said permanent-magnet rotary machine comprises a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle, and said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity while said vehicle is running idly with no torque generated by said permanent-magnet rotary machine.

8. An apparatus according to any one of claims 1 through 3, wherein said permanent-magnet rotary machine comprises a rotary machine having a rotor connected to an output shaft of an engine, said rotary machine and said engine being mounted on a parallel hybrid vehicle, and said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity while said engine is operating with no torque generated by said permanent-magnet rotary machine.

9. An apparatus according to any one of claims 1 through 3, wherein said permanent-magnet rotary machine comprises a rotary machine having a rotor connected to an

output shaft of an engine, said rotary machine and said engine being mounted on a parallel hybrid vehicle, and said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity while said engine is idling with no torque generated by said permanent-magnet rotary machine.